

L. W. STOCKWELL.

Improvement in Screw Cutting Machines.

No. 123,951. Patented Feb. 20, 1872.

Figure 1.

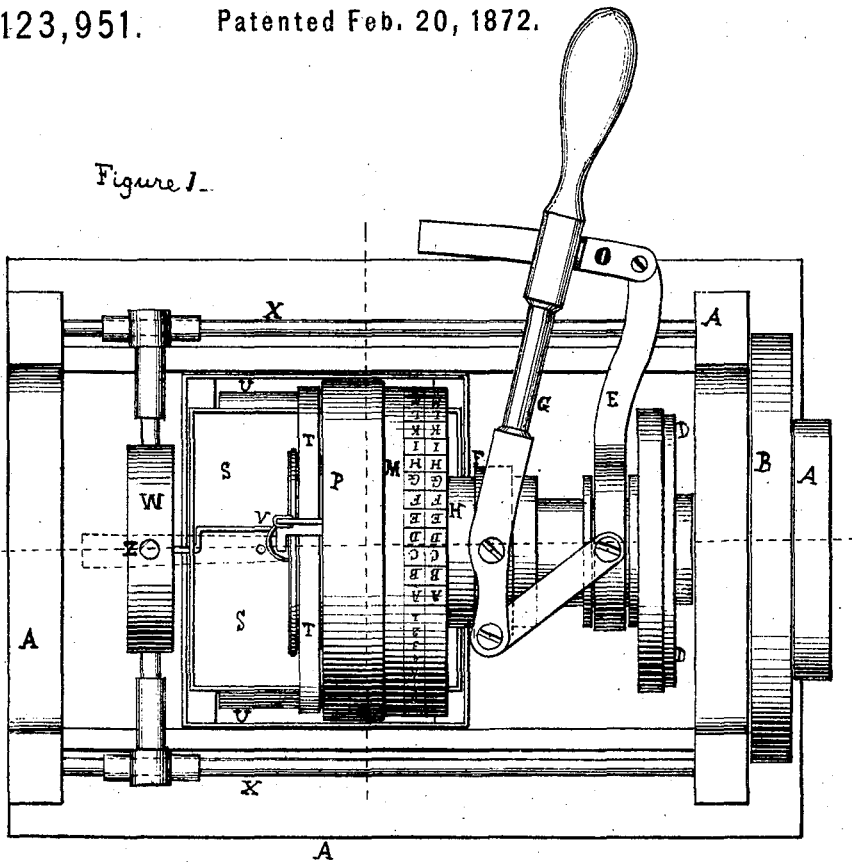


Figure 3.

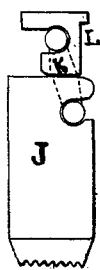


Figure 2.

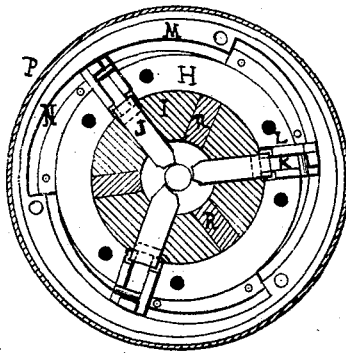
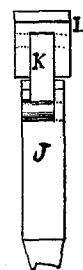


Figure 4.



Witnesses

Alexander B. Griffin
Newell Ship

Inventor

Levi W. Stockwell
per Bradford Howland
Attorney.

UNITED STATES PATENT OFFICE.

LEVI W. STOCKWELL, OF RAVENNA, OHIO.

IMPROVEMENT IN SCREW-CUTTING MACHINES.

Specification forming part of Letters Patent No. 123,951, dated February 20, 1872.

Specification describing certain Improvements in Bolt-Cutting Machines, invented by LEVI W. STOCKWELL, of Ravenna, in the county of Portage and State of Ohio.

Figure 1 is a view of the top of the machine embodying my invention. Fig. 2 is a section of the front end of the cutter-head. Fig. 3 is a side view of a die and parts connected therewith. Fig. 4 is a right-hand-side view of parts shown in Fig. 3. Fig. 5 is a side elevation of a section of the machine.

A is the frame of the machine; B is the driving-pulley, which is hung on the shaft C; D is the face-plate, to which the cutter-head is bolted through holes in the flange on the back end of the cutter-head; E is the lever support, with a ring at one end, through which the cutter-head turns, and which is kept in its position by a shoulder on each side. The ring F is in a groove around the sliding collar H, which turns in the ring. To the rings E and F is attached the jointed lever G. I is the part of the cutter-head which holds the dies J, and passes through the sliding collar H, which is moved back by the lever G to open the dies, and forward by the same lever to close the dies on the bolt. The dies are connected with the sliding collar by the strut-levers K. The outer ends of the strut-levers are held and turn in the seats L, which are in the sliding collar and move with it. The other ends of the strut-levers are held and turned in the outer ends of the dies. M is a scroll, which may be turned on the sliding collar one-third of the distance around it. The flanges on the seats L, shown at the upper right corner of Fig. 3, rest in the groove N which is in the scroll, and by means of which, when the scroll is turned on the sliding collar, the seats, strut-levers, and dies are moved in or out to adjust the dies for different-sized bolts. There is a scale on the outside of the scroll at the right-hand side, and a scale adjoining it on the outside of the sliding collar, one of them being a vernier. The vernier scale extends one-third of the circumference; and the other scale extends two-thirds of the circumference. The inside of the scroll has three cams, or as many as there are dies used, each extending one-third of the distance around the scroll. When the scroll is turned on the sliding collar, the dies are adjusted by these cams for different-sized bolts, and to compensate for wear of

dies. The vernier scale indicates what the adjustment is. One of the advantages of using the vernier scale is, that slight adjustments of the dies are indicated, while the division-lines on the scales are far enough apart to be easily seen and indexed by letters and figures.

When the lever G is moved back against the stop O, the dies are drawn out by the strut-levers, so that the bolt may be removed. To move the dies in to cut the bolt, the sliding collar is thrown forward by the lever G, so that the strut-levers stand in line with the dies, and both the strut-levers and dies are at right angles with the bolt. To remove and change the dies, the cap P, covering the face of the cutter-head, is slipped off, and the stop O is turned so that the lever G may be thrown far enough back to open the dies enough to bring the strut-levers at right angles with the dies, when the strut-levers may be taken out of the dies, and the dies drawn out and replaced by others. The dies are cut by being placed in the grooves R R R, which are so made that the center line lengthwise of each die if extended would not pass through the axis of the cutter-head, but a little to one side of the axis. When in use, each die is placed (as shown in the drawing) in the groove opposite to the one in which it was cut, and where the center line of each die if extended would not pass through the axis of the cutter-head, but a little to the same side of the axis that it did when the die was in groove R. By reason of the center of these grooves not being cut in the exact direction of the cutter-head, after the die is cut in the groove R, one side of the die projects beyond the opposite side, and when the die is in use in the opposite groove, where it appears in the drawing, the projecting side of the die-face cuts the thread of the bolt; and the opposite side of the die-face does not press against the bolt, and consequently there is less friction than there would be if the whole face of the die was on a line with the circumference of the bolt. The dies may also be used in the grooves R R R, where they are cut, and where each side of the die-face will be equally distant from the axis of the cutter-head. But when the cutting-side of the die-face is dull or worn, it will thread the bolt with much less friction by using it in the opposite groove, where it appears in the drawing.

S is the upper part of a vessel which catches the oil and cuttings falling from the machine, strains the oil through a sieve into the bottom of the vessel, from whence the oil is carried by the belt T passing under the rollers U and over a rim or circular projection on the cap P, from the top of which the oil is scraped or led from the belt by the oil-leader V onto the bolt where the dies are cutting. W is a ring forming part of the bolt-holder, with two horizontal pins projecting from opposite sides into the tubes, which are part of the sliding collars that slide on the rods X fastened in the frame of the machine. The bolt is drawn between the dies and drawn out when cut by the sliding of the bolt-holder on the rods X. Inside of the ring W is the dog Y, in which the bolt is held from turning by the screw Z, which passes loosely through a hole in the side of the ring, and is screwed through the side of the dog against the bolt. The opposite and under side of the dog passes loosely through a hole in the ring, and has a spiral spring around it inside of the ring strong enough to hold up the weight of the dog and bolt to the center of the ring. While the dog firmly holds the bolt from turning, it can be freely moved vertically through the holes in the ring, and horizontally by means of the horizontal pins of the ring sliding freely in the tubes, and by these two motions combined it can move freely in any direction. By means of this movable bolt-holder, a bent or crooked bolt, which is not on a line where it is being cut with the part where it is held, may be so

held that the part which is being cut will be at right angles with the dies. The lever G is attached to the cutter-head only, and the cutter-head may be attached to and operated by a lathe by simply bolting it through the flange on the back end to the face-plate of the lathe.

I claim as my invention—

1. The combination of the ring W, the sliding collars on the rods X X, the dog Y, screw Z, and the spiral spring which forms the bolt-holder, substantially as and for the purpose herein set forth.

2. The belt for carrying the oil, in combination with the oil-vessel, the cutter-head, and oil-leader, substantially as and for the purpose hereinbefore set forth.

3. The combination of the reciprocating ring or scroll M, the seats or sockets L, the strut-levers K, and the dies J, substantially as and for the purpose herein set forth.

4. The combination of the dies, the strut-levers, the seats, the scroll, and sliding collar H, substantially as and for the purpose hereinbefore set forth.

5. The combination of the lever G, the lever-support and ring E, the revolving arbor of the cutter-head, the ring F, the sliding collar H, and the two links which connect the lever-support E with the lever G, substantially as and for the purpose herein set forth.

LEVI W. STOCKWELL.

Witnesses:

BRADFORD HOWLAND,
ALEXANDER B. GRIFFIN.